

PATENTS

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of

Örjan FRITZ et al.

Serial No. (unknown)

Application Branch

Filed herewith

METHOD, AND ARRANGEMENT  
IN A COMMUNICATIONS NETWORK

PRELIMINARY AMENDMENT

Commissioner for Patents

Washington, D.C. 20231

Sir:

Prior to the first Official Action and calculation of the filing fee, please amend the above-identified application as follows:

IN THE CLAIMS:

Amend claim 4 as follows:

--4. (Amended) The method according to claim 1, comprising the further step to be taken before the step of establishing (701) a bi-directional wireless ACL connection: *obtaining* an address of a printer.--

Amend claim 8 as follows:

--8. (Amended) The method according to claim 1, wherein the step of negotiating configuration parameters (503), between the printer client (1001) and the printer server (1002), is performed by the printer client (1001) requesting configuration in a message (1101) sent to the

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printer server (1002), the message including no new options,  
if printer client (1001) uses default values.--

Amend claim 9 as follows:

--9. (Amended) The method according to claim 1,  
wherein the step of negotiating configuration parameters(503),  
between the printer client (1001) and the printer server  
(1002), is performed by the printer client (1001) requesting  
configuration in a message (1103) sent to the printer server  
(1002), the message including a suggestion of configuration  
options.--

Amend claim 12 as follows:

--12 (Amended) The method according to claim 1,  
comprising the further step to be taken after the step of  
negotiating configuration parameters (503):  
*sending* a set attribute request message (1201) from the  
printer client (1001) to the printer server (1002) the message  
comprising a coding table concerning a negotiated coding  
type.--

Amend claim 15 as follows:

--15 (Amended) The method according to claim 1,  
wherein a keep alive timer is implemented in the printer  
client (1001) and in the printer server (1002), comprising the  
further step of :

*starting* the keep alive timer each time a valid message is received from the remote endpoint.--

Amend claim 17 as follows:

--17 (Amended) The method according to claim 1, wherein the step of starting a print job (505) is performed by the printer client (1001) requests the printer server (1002) to start a printjob in a request message (1305).--

Amend claim 19 as follows:

--19. (Amended) The method according to claim 1, wherein the step of sending the print data from the processing unit to the printer (506), is performed by requesting the printer server (1002) to print data sent in a number of messages (1307, 1308, 1310).--

Amend claim 21 as follows:

--21. (Amended) The method according to claim 1, comprising the further step to be taken if the printer runs out of paper:  
*indicating* that the printer is out of paper in a message (1406) sent from the printer server (1002) to the printer client (1001).--

Amend claim 24 as follows:

--24. (Amended) The method according to claim 1, wherein the ACL connection is disconnected during printing,

the method comprising the further step of:

*stopping* the keep alive timer.--

Amend claim 28 as follows:

--28. (Amended) The method according to claim 1, wherein the step of stopping the print job (707), is performed by, after sending all data to be printed to the printer server (1002), sending a request to stop the printjob in a message (1311) from the printer client (1001) to the printer server (1002).--

Amend claim 30 as follows:

--30. (Amended) The method according to claim 1, wherein the step of closing the connection between the processing unit and the printer (708) is performed by the printer client (1001) requesting a disconnection of the session defined by the session identity in a message (1313) sent to the printer server (1002).--

Amend claim 32 as follows:

--32. (Amended) The method according to claim 1, comprising the further step to be taken after the step of closing the connection between the processing unit and the printer (708):

*stopping* the sending of keep alive messages.--

Amend claim 33 as follows:

--33. (Amended) A computer program product

directly loadable into the internal memory of a digital computer within a processing unit or printer in a communication system, comprising the software code portions for performing the steps of claim 1, when said product is run on a computer.--

Amend claim as follows:

--34. (Amended) A computer program product stored on a computer usable medium, comprising readable program for causing a computer within a processing unit or printer in a communication system, to control an execution of the steps of claim 1.--

Amend claim 37 as follows:

--37. (Amended) The entity (501) according to claim 35, wherein when negotiating configuration parameters, the printer client uses default values, **characterised** by comprising a sending device (505) arranged for sending a configuration request message to the printer server, the message including no new options.--

Amend claim 38 as follows:

--38. (Amended) The entity (501) according to claim 35, **characterised** by comprising a sending device (506) arranged for sending a configuration request message to the printer server, the message including a suggestion of configuration options.--

Amend claim 39 as follows:

--39. (Amended) The entity (501) according to claim 35, **characterised** by comprising a sending device (507) arranged for sending a further configuration request to the printer server, the message including suggestion of configuration options which differs from earlier suggestions of configuration options.--

Amend claim 40 as follows:

--40. (Amended) The entity (501) according to claim 35, **characterised** by comprising a sending device (508) arranged for sending a set attribute request message to the printer server, the message comprising a coding table concerning a negotiated coding type.--

Amend claim 41 as follows:

--41. (Amended) The entity (501) according to claim 35, **characterised** in that a keep alive timer (510) is implemented in the printer client.--

Amend claim 44 as follows:

--44. (Amended) The entity (501) according to claim 35, **characterised** by comprising a sending device (514) arranged for sending a request message to the printer server comprising a request to start a printjob.--

Amend claim 45 as follows:

--45. (Amended) The entity (501) according to claim 35, **characterised** by comprising a sending device (516) arranged for sending a number of request messages to the

printer server, the messages comprising print data.--

Amend claim 46 as follows:

--46. (Amended) The entity (501) according to claim 35, wherein a refill of paper has broken a printing process, **characterised** by comprising a continuing device (517) arranged for continuing the printing process by continuing to send print data request messages to the printer server, starting with the print data subsequent to the last received print data acknowledgement message.--

Amend claim 48 as follows:

--48. (Amended) The entity (501) according to claim 35, wherein a new ACL connection is created to the printer after a break, **characterised** by comprising a requesting device (519) arranged for requesting a reconnection of a session defined by the session identifier in a message sent to the printer server.--

Amend claim 50 as follows:

--50. (Amended) The entity (501) according to claim 35, wherein all data to be printed is sent to the printer **characterised** by comprising a sending device (521) arranged for sending a message to the printer server, the message comprising a request to stop the printjob.--

Amend claim 51 as follows:

--51. (Amended) The entity (501) according to claim 35, **characterised** by comprising a sending device (523)

arranged for sending a message to the printer server, the message comprising a request to disconnect a session identified by a session identity.--

Amend claim 52 as follows:

--52. (Amended) The entity (501) according to claim 35, **characterised** by comprising a stopping device (524) arranged for stopping the sending of keep alive messages after closing a connection between the printer client and the printer server.--

Amend claim 55 as follows:

--55. (Amended) The printer entity (601) according to claim 53, **characterised** in comprising a responding device (606) arranged for responding upon a configuration request whether the configuration options in the configuration request are supported by the printer server or not.--

Amend claim 56 as follows:

--56. (Amended) The printer entity (601) according to claim 53, **characterised** in comprising a loading device (607) arranged for loading a coding table sent from the printer client.--

Amend claim 58 as follows:

--58. (Amended) The printer entity (601) according to claim 53, **characterised** in that a keep alive timer (610) is implemented in the printer server.--

Amend claim 60 as follows:



--60. (Amended) The printer entity (601) according to claim 53, **characterised** in comprising a confirming device (613) arranged for confirming a start printjob request message sent to the printer client.--

Amend claim 61 as follows:

--61. (Amended) The printer entity (601) according to claim 53, **characterised** in comprising a sending device (615) arranged for sending an acknowledgement message to the printer client after receiving a previous decided number of print data request messages.--

Amend claim 62 as follows:

--62. (Amended) The printer entity (601) according to claim 53, **characterised** in comprising an indicating device (616) arranged for indicating, in a message sent to the printer client, that the printer is out of paper, if the printer runs out of paper.--

Amend claim 63 as follows:

--63. (Amended) The printer entity (601) according to claim 53, **characterised** in comprising an indicating device (617) arranged for indicating, in a message sent to the printer client, that the printer is refilled, when the printer is refilled.--

Amend claim 64 as follows:

--64. (Amended) The printer entity (601) according to claim 53, **characterised** by comprising a stopping device

(618) arranged for stopping the keep alive timer when an ACL connection to the processing unit is disconnected during a printing process.--

Amend claim 65 as follows:

--65. (Amended) The printer entity (601) according to claim 53, **characterised** in comprising a sending device (619) arranged for sending a response message to the printer client, according to whether a reconnection request is granted or not.--

Amend claim 66 as follows:

--66. (Amended) The printer entity (601) according to claim 53, **characterised** in comprising a sending device (621) arranged for sending a response message, after the printer server has received a request to stop the printjob, the message comprising a confirmation that this is apprehended and is sent to the printer client.--

Amend claim 67 as follows:

--67. (Amended) The printer entity (601) according to claim 53, **characterised** in comprising a sending device (622) arranged for sending a response message to the printer client, according to whether a disconnection request is granted or not.--

Amend claim 68 as follows:

--68. (Amended) The printer entity (601) according to claim 53, **characterised** in comprising a stopping device

(623) arranged for stopping the sending of keep alive messages after the connection to the printer client is closed.--

Amend claim 69 as follows:

--69. (Amended) Communications system (401) **characterised** by comprising a processing unit (501) according to claim 35 and a printer entity (601) included in a Printer (403), the printer entity (601) including a Bluetooth protocol stack comprising a Logical Link Control and Adaptation Protocol (L2CAP) **characterised** in that the Bluetooth protocol stack further includes a wireless printer protocol, said printer protocol comprising a printer server which communicates with a printer client, included in a processing unit (402), by means of the wireless printer protocol, the Bluetooth protocol stack and air interface, the printer entity (601) further comprises:

a negotiating device (605) arranged for negotiating configuration parameters with a printer client within the processing unit;

a sending device (609) arranged for sending keep alive messages frequently to the printer client ;

a starting device (612) arranged for starting a print job;

a receiving device (614) arranged for receiving print data from the printer client; and

a stopping device (620) arranged for stopping the print job.--

R E M A R K S

Örjan FRITZ et al. - Docket No. P5118US00

Attached hereto is a marked-up version of the changes made to the claims by the current amendment. The attached page is captioned "VERSION WITH MARKINGS TO SHOW CHANGES MADE."

Respectfully submitted,

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By



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May 31, 2001

VERSION WITH MARKINGS TO SHOW CHANGES MADE

Amend claim 4 as follows:

--4. (Amended) The method according to ~~any of the previous claims 1~~, comprising the further step to be taken before the step of establishing (701) a bi-directional wireless ACL connection:  
obtaining an address of a printer.--

Amend claim 8 as follows:

--8. (Amended) The method according to ~~any of the previous claims 1~~, wherein the step of negotiating configuration parameters (503), between the printer client (1001) and the printer server (1002), is performed by the printer client (1001) requesting configuration in a message (1101) sent to the printer server (1002), the message including no new options, if printer client (1001) uses default values.--

Amend claim 9 as follows:

--9. (Amended) The method according to ~~any of the previous claims 1~~, wherein the step of negotiating configuration parameters(503), between the printer client (1001) and the printer server (1002), is performed by the printer client (1001) requesting configuration in a message (1103) sent to

the printer server (1002), the message including a suggestion of configuration options.--

Amend claim 12 as follows:

--12 (Amended) The method according to ~~any of the previous claims~~ 1, comprising the further step to be taken after the step of negotiating configuration parameters (503): *sending* a set attribute request message (1201) from the printer client (1001) to the printer server (1002) the message comprising a coding table concerning a negotiated coding type.--

Amend claim 15 as follows:

--15 (Amended) The method according to ~~any of the previous claims~~ 1, wherein a keep alive timer is implemented in the printer client (1001) and in the printer server (1002), comprising the further step of : *starting* the keep alive timer each time a valid message is received from the remote endpoint.--

Amend claim 17 as follows:

--17 (Amended) The method according to ~~any of the previous claims~~ 1, wherein the step of starting a print job (505) is performed by the printer client (1001) requests the printer server (1002) to start a printjob in a request message (1305).--

Amend claim 19 as follows:

--19. (Amended) The method according to ~~any of the previous-claims 1~~, wherein the step of sending the print data from the processing unit to the printer (506), is performed by requesting the printer server (1002) to print data sent in a number of messages (1307, 1308, 1310).--

Amend claim 21 as follows:

--21. (Amended) The method according to ~~any of the previous-claims 1~~, comprising the further step to be taken if the printer runs out of paper:  
*indicating* that the printer is out of paper in a message (1406) sent from the printer server (1002) to the printer client (1001).--

Amend claim 24 as follows:

--24. (Amended) The method according to ~~any of the claims 1~~, wherein the ACL connection is disconnected during printing, the method comprising the further step of:  
*stopping* the keep alive timer.--

Amend claim 28 as follows:

--28. (Amended) The method according to ~~any of the previous-claims 1~~, wherein the step of stopping the print job (707), is performed by, after sending all data to be printed to the printer server (1002), sending a request to stop the

printjob in a message (1311) from the printer client (1001) to the printer server (1002).--

Amend claim 30 as follows:

--30. (Amended) The method according to ~~any of the previous claims~~ 1, wherein the step of closing the connection between the processing unit and the printer (708) is performed by the printer client (1001) requesting a disconnection of the session defined by the session identity in a message (1313) sent to the printer server (1002).--

Amend claim 32 as follows:

--32. (Amended) The method according to ~~any of the previous claims~~ 1, comprising the further step to be taken after the step of closing the connection between the processing unit and the printer (708):  
*stopping* the sending of keep alive messages.--

Amend claim 33 as follows:

--33. (Amended) A computer program product directly loadable into the internal memory of a digital computer within a processing unit or printer in a communication system, comprising the software code portions for performing the steps of ~~any of the claims 1-32~~ 1, when said product is run on a computer.--

Amend claim as follows:

--34. (Amended) A computer program product stored on a computer usable medium, comprising readable program for



causing a computer within a processing unit or printer in a communication system, to control an execution of the steps of ~~any of the claims 1-32~~ 1.--

Amend claim 37 as follows:

--37. (Amended) The entity (501) according to ~~any of the claims 35-36~~ 35, wherein when negotiating configuration parameters, the printer client uses default values, **characterised** by comprising a sending device (505) arranged for sending a configuration request message to the printer server, the message including no new options.--

Amend claim 38 as follows:

--38. (Amended) The entity (501) according to ~~any of the claims 35-37~~ 35, **characterised** by comprising a sending device (506) arranged for sending a configuration request message to the printer server, the message including a suggestion of configuration options.--

Amend claim 39 as follows:

--39. (Amended) The entity (501) according to ~~any of the claims 35-38~~ 35, **characterised** by comprising a sending device (507) arranged for sending a further configuration request to the printer server, the message including suggestion of configuration options which differs from earlier suggestions of configuration options.--

Amend claim 40 as follows:

--40. (Amended) The entity (501) according to ~~any of the claims 35-39~~ 35, **characterised** by comprising a sending device (508) arranged for sending a set attribute request message to the printer server, the message comprising a coding table concerning a negotiated coding type.--

Amend claim 41 as follows:

--41. (Amended) The entity (501) according to ~~any of the claims 35-40~~ 35, **characterised** in that a keep alive timer (510) is implemented in the printer client.--

Amend claim 44 as follows:

--44. (Amended) The entity (501) according to ~~any of the claims 35-43~~ 35, **characterised** by comprising a sending device (514) arranged for sending a request message to the printer server comprising a request to start a printjob.--

Amend claim 45 as follows:

--45. (Amended) The entity (501) according to ~~any of the claims 35-44~~ 35, **characterised** by comprising a sending device (516) arranged for sending a number of request messages to the printer server, the messages comprising print data.--

Amend claim 46 as follows:

--46. (Amended) The entity (501) according to ~~any of the claims 35-45~~ 35, wherein a refill of paper has broken a printing process, **characterised** by comprising a continuing device (517) arranged for continuing the printing process by continuing to send print data request messages to the printer

server, starting with the print data subsequent to the last received print data acknowledgement message.--

Amend claim 48 as follows:

--48. (Amended) The entity (501) according to ~~any of the claims 35-47~~ 35, wherein a new ACL connection is created to the printer after a break, **characterised** by comprising a requesting device (519) arranged for requesting a reconnection of a session defined by the session identifier in a message sent to the printer server.--

Amend claim 50 as follows:

--50. (Amended) The entity (501) according to ~~any of the claims 35-49~~ 35, wherein all data to be printed is sent to the printer **characterised** by comprising a sending device (521) arranged for sending a message to the printer server, the message comprising a request to stop the printjob.--

Amend claim 51 as follows:

--51. (Amended) The entity (501) according to ~~any of the claims 35-50~~ 35, **characterised** by comprising a sending device (523) arranged for sending a message to the printer server, the message comprising a request to disconnect a session identified by a session identity.--

Amend claim 52 as follows:

--52. (Amended) The entity (501) according to ~~any of the claims 35-51~~ 35, **characterised** by comprising a stopping device (524) arranged for stopping the sending of keep alive

messages after closing a connection between the printer client and the printer server.--

Amend claim 55 as follows:

--55. (Amended) The printer entity (601) according to ~~any of the claims 53-54~~ 53, **characterised** in comprising a responding device (606) arranged for responding upon a configuration request whether the configuration options in the configuration request are supported by the printer server or not.--

Amend claim 56 as follows:

--56. (Amended) The printer entity (601) according to ~~any of the claims 53-55~~ 53, **characterised** in comprising a loading device (607) arranged for loading a coding table sent from the printer client.--

Amend claim 58 as follows:

--58. (Amended) The printer entity (601) according to ~~any of the claims 53-57~~ 53, **characterised** in that a keep alive timer (610) is implemented in the printer server.--

Amend claim 60 as follows:

--60. (Amended) The printer entity (601) according to ~~any of the claims 53-59~~ 53, **characterised** in comprising a confirming device (613) arranged for confirming a start printjob request message sent to the printer client.--

Amend claim 61 as follows:

--61. (Amended) The printer entity (601) according

to ~~any of the claims 53-60~~ 53, **characterised** in comprising a sending device (615) arranged for sending an acknowledgement message to the printer client after receiving a previous decided number of print data request messages.--

Amend claim 62 as follows:

--62. (Amended) The printer entity (601) according to ~~any of the claims 53-61~~ 53, **characterised** in comprising an indicating device (616) arranged for indicating, in a message sent to the printer client, that the printer is out of paper, if the printer runs out of paper.--

Amend claim 63 as follows:

--63. (Amended) The printer entity (601) according to ~~any of the claims 53-62~~ 53, **characterised** in comprising an indicating device (617) arranged for indicating, in a message sent to the printer client, that the printer is refilled, when the printer is refilled.--

Amend claim 64 as follows:

--64. (Amended) The printer entity (601) according to ~~any of the claims 53-63~~ 53, **characterised** by comprising a stopping device (618) arranged for stopping the keep alive timer when an ACL connection to the processing unit is disconnected during a printing process.--

Amend claim 65 as follows:

--65. (Amended) The printer entity (601) according to ~~any of the claims 53-64~~ 53, **characterised** in comprising a

sending device (619) arranged for sending a response message to the printer client, according to whether a reconnection request is granted or not.--

Amend claim 66 as follows:

--66. (Amended) The printer entity (601) according to ~~any of the claims 53-65~~ 53, **characterised** in comprising a sending device (621) arranged for sending a response message, after the printer server has received a request to stop the printjob, the message comprising a confirmation that this is apprehended and is sent to the printer client.--

Amend claim 67 as follows:

--67. (Amended) The printer entity (601) according to ~~any of the claims 53-66~~ 53, **characterised** in comprising a sending device (622) arranged for sending a response message to the printer client, according to whether a disconnection request is granted or not.--

Amend claim 68 as follows:

--68. (Amended) The printer entity (601) according to ~~any of the claims 53-67~~ 53, **characterised** in comprising a stopping device (623) arranged for stopping the sending of keep alive messages after the connection to the printer client is closed.--

Amend claim 69 as follows:

--69. (Amended) Communications system (401) **characterised** by comprising a processing unit (501) according

to any of the claims ~~35-52~~ 35 and a printer entity (601) according to any of the claims ~~53-68~~.--included in a Printer (403), the printer entity (601) including a Bluetooth protocol stack comprising a Logical Link Control and Adaptation Protocol (L2CAP) characterised in that the Bluetooth protocol stack further includes a wireless printer protocol, said printer protocol comprising a printer server which communicates with a printer client, included in a processing unit (402), by means of the wireless printer protocol, the Bluetooth protocol stack and air interface, the printer entity (601) further comprises:

a negotiating device (605) arranged for negotiating configuration parameters with a printer client within the processing unit;

a sending device (609) arranged for sending keep alive messages frequently to the printer client ;

a starting device (612) arranged for starting a print job;

a receiving device (614) arranged for receiving print data from the printer client; and

a stopping device (620) arranged for stopping the print job.--